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a productive endowment of not less than \$200,000. This proviso was made because experience has proved that no college can maintain fair educational standards without adequate endowment.

The examination which I have just caused to be made of the George Washington University shows that its announced standards of admission to the various schools are not enforced.

In the college division of the University regular students are admitted with reasonable regard to the stated admission requirements, but of the total enrollment more than one third are special students. The value of the A.B. degree, however, is seriously lowered by the lax administration of the College of Political Sciences and the Division of Education, to which admission is granted with little regard to the published entrance requirements. The Law School announces a four-year high-school education as a prerequisite for admission, but does not enforce it. Similarly in the Medical School the announced requirements for admission have been repeatedly evaded. If the entrance requirements to this school were actually enforced, the enrollment would be so greatly reduced that the department could not continue: a result, I may add, entirely in the interest of medical education, since the District of Columbia and the region about it are over-supplied not only with physicians, but with weak medical schools.

The executive committee feels compelled also to protest against the extraordinary action of the institution in forcibly retiring two professors, both of whom are in the prime of their active teaching, on the ground that the institution needs to save money by the retiring allowance system, but it is entirely contrary to the spirit in which this Foundation was conceived and is a blow at academic dignity and academic freedom.

The committee further calls your attention to the extract from the rules for the admission of institutions, "The Trustees of the Carnegie Foundation for the Advancement of Teaching reserve the right to discontinue the privilege of participation in the system of retiring allowances of the Foundation whenever, in the judgment of the trustees, an institution ceases to conform to the regulations maintained by the trustees. Such withdrawal shall not, however, result in the discontinuance of retiring allowance already granted."

The executive committee, by virtue of the authority conferred upon it under the by-laws, in view of the conditions existing in the George Washington University referred to above, conditions which are entirely out of harmony with the

educational ideals for which the Foundation stands, informs you with great regret that the relation of the George Washington University as an accepted institution is terminated with this date.

Very truly yours,
(Signed) HENRY S. PRITCHETT,
President

SCIENTIFIC NOTES AND NEWS

At its last meeting the Rumford committee of the American Academy of Arts and Sciences voted a grant of \$300 to Professor W. W. Campbell, of the Lick Observatory, for the purchase of certain parts of a quartz spectrograph and to Professor M. A. Rosanoff, of Clark University, a grant of \$200 in further aid of his research on "The Fractional Distillation of Binary Mixtures."

MR. JOHN J. CARTY, chief engineer of the New York Telephone Company, has received from the Emperor of Japan the decoration of the Order of the Rising Sun in recognition of engineering services rendered to Japan.

THE Bessemer medal of the British Iron and Steel Institute has been presented to M. A. POURCEL.

PROFESSORS YVES DELAGE and M. G. RETZIUS have been elected foreign members of the Linnean Society.

MR. HORACE DARWIN, F.R.S., has been elected a corresponding member of the Vienna Academy of Sciences.

MR. CLARENCE J. HUMPHREY, assistant in botany in Cornell University, has accepted a position as scientific assistant in forest pathology in the Bureau of Plant Industry.

THE Bowdoin prizes for essays in English for the academic year 1908-9 have been awarded by the faculty of arts and sciences of Harvard University. Three prizes of \$200 each were awarded to graduates. The first of these went to C. L. B. Shudde magen for his essay on "Mechanical Analogues for Electromagnetic Systems." R. C. Mullenix, the second of the graduate prize winners, had as his subject, "The Neurone Theory; Its Development and Its Present Status."

PROFESSOR JOSEPH P. IDDINGS, of the United States Geological Survey, who has been occu-

pied during the past year in the preparation of a work on igneous rocks, the first volume of which has just been published by John Wiley and Sons, has severed his connection with the University of Chicago, and has started on a visit to portions of Japan, China, the Philippines and Java, under the immediate auspices of the Smithsonian Institution of Washington. The purpose of his visit is the study of the volcanic rocks of these regions in order to complete the second volume, or descriptive part, of his book. Publications may be sent to him in care of the Smithsonian Institution in Washington.

FREDERICK MONSEN has gone to the deserts of Chihuahua and Sonora to make ethnological research among the Indians of those parts and to study the physical geography of the region. Late in July, Mr. Monsen will visit Arizona, where three months will be devoted to investigation among the Hopi and Navajo Indians, after which he will endeavor to photograph the Grand Canyon from above by means of kites which he will fly from the rim of the canyon, sending them over 6,000 feet above the surface of the river. Mr. Monsen returns to New York next November.

MR. WILLIAM B. RICHARDSON, collecting for the American Museum of Natural History in Nicaragua, announces the shipment of a large collection of birds and mammals made during the last six months at points ranging in altitudes from 700 to 5,000 feet.

ALBERT A. GIESECKE, Ph.D. (Cornell), has been commissioned by the Peruvian government to organize a system of commercial and technical education in Peru, and will leave in a short time for Lima.

PROFESSOR KENGO MAKINO, of the department of electrical engineering, University of Waseda, Tokyo, Japan, is now on his way home *via* Europe after a couple of years spent at Cornell in post-graduate study.

DR. GEORGE DOCK, of New Orleans, has sailed for England and the continent. He will attend the International Medical Congress at Buda-Pesth.

DR. ALFRED DACHNOWSKI, of the botanical department of the Ohio State University, is

spending the summer in Europe. He will visit the Azores, Italy, Switzerland and Germany, and will make observations on forestry, as practised in those countries.

RECENT visitors at the Bureau of Plant Industry of the U. S. Department of Agriculture have been Mr. B. Barlow, of the Ontario Experiment Station; Mr. W. Henry Grant, secretary of the Canton Christian College, Canton, China; Mr. Osborn Ashton, of Cairo, Egypt; Mr. Horace G. Knowles, formerly minister to Roumania; Dr. Arthur Donaldson Smith, Consul at Patras, Greece.

AT the University of Pennsylvania the address before Phi Beta Kappa and Sigma Xi will be given by Professor H. C. Richards, of the department of physics.

PROFESSOR CHARLES S. PROSSER has given a course of lectures at Ohio State University describing the opportunities for graduate study in geology at some of the leading American universities. Those to which the greatest attention has been given are Johns Hopkins, Princeton, Columbia, Yale, Harvard, Cornell and Chicago.

MR. JOHN HAYS HAMMOND gave the address at the thirty-fifth annual commencement of the Colorado School of Mines, held on May 28.

THE Croonian lecture of the Royal Society was delivered on June 10, by Professor E. A. Schäfer, F.R.S., on "The Functions of the Pituitary Body."

THE statue of Lamarck, erected by international subscription, was unveiled in the Jardin des Plantes, Paris, on June 13.

MR. CHARLES L. BUCKINGHAM, well known as an inventor in the field of telegraphy and as a patent lawyer, died at this home in New York City on May 31, at the age of fifty-seven years.

THE death of Dr. J. D. E. Schmeltz, director of the State Museum of Ethnography at Leyden, Holland, is announced. He began his work in the Godefroy Museum in Hamburg, whence he was called to Leyden in 1884 as assistant of Dr. Serrurier. Later on he became director of the museum, and the development of the collections during the last twenty

years has been due to his untiring energies. He was the founder and editor of the "International Archives of Ethnography."

MR. THOMAS MELLARD READE, known for his contributions to geology, has died at his home in Liverpool, at the age of seventy-seven years.

THE death is also announced of M. Eugene Grenet, the French electrical engineer.

DURING the present school year, the council of Phi Lambda Upsilon, a national honorary chemical society, has granted three charters: the first, in Chicago, as the Chicago Alumni Chapter; the second, in New York City, as the Columbia University Chapter, and the third, in Ann Arbor as the University of Michigan Chapter. The society was founded at the University of Illinois in 1899. It has for its fundamental object the promotion and protection of high scholarship and original investigation in all branches of pure and applied chemistry. Active membership is limited to graduate and advanced undergraduate students, except in the case of the student having the highest average grade at the end of the sophomore year. The election of men is based primarily upon their scholastic standing and promise of research ability. Among the honorary members of the society there are: Professors W. A. Noyes, C. F. Chandler, S. L. Bigelow, Louis Kahlenberg, H. C. Sherman, E. D. Campbell, S. W. Parr, M. T. Bogert, H. S. Grindley, S. M. Babcock, R. H. Chittenden, C. G. Hopkins, A. P. Matthews, Drs. L. W. Andrews, A. G. Manns and T. J. Bryan.

At the annual meeting of the Society of Detroit Chemists, held May 28, the following officers were elected: *President*, Frank T. F. Stephenson, chemistry department, Detroit College of Medicine; *Vice-president*, L. D. Vorce, Pennsylvania Salt Manufacturing Company; *Secretary*, H. C. Hamilton, Parke, Davis & Company; *Treasurer*, W. D. Mainwaring, Railway Steel Spring Company. The membership reported is 84. Regular monthly meetings were held through the year, with attendance about 50 per meeting. Preparations have been practically completed for the entertainment of the American Chemical Society in June.

THE Biological Club of Oberlin College was organized during the last year, its membership embracing the instructors in the departments of botany, geology, physiology and zoology. Its officers are: *President*, Professor E. B. Branson; *Secretary*, Professor R. A. Budington. During the year the following meetings have been held:

November 25—"Dinichthid Fishes of Ohio, with special reference to a species of *Dinichthys* in the Oberlin Museum," by Professor E. B. Branson.

December 9—"Internal Secretions," by Professor R. A. Budington.

January 13—Reports by members who attended the Association meetings in Baltimore during the Christmas holidays.

January 27—"Present-day Conceptions as to the Rôle of the Sympathetic Nervous System in Man," by Professor F. E. Leonard.

February 10—"Some Nuclear Phenomena in the Fungi," by Dr. Susan P. Nichols.

February 24—"Some Recent Work on the Protozoa," by Professor M. M. Metcalf.

March 10—"Feeding Experiments with Birds," by Professor Lynds Jones.

March 25—"Maturation Phenomena in Plants and Animals," by Professor F. O. Grover.

April 14—"The Ecological Succession of Birds," by Mr. B. R. Showalter.

April 28—"The Planetesimal Hypothesis," by Professor E. B. Branson.

May 12—"The Phylogeny of the Angiosperms," by Mr. C. B. Wilson.

May 28—"The Static vs. the Dynamic and Vitalistic Theories of Evolution," by Professor F. O. Grover.

IN connection with the annual grant voted by Parliament in aid of scientific investigations concerning the causes and processes of disease, Mr. Burns, the president of the Local Government Board, has, as we learn from *Nature*, authorized the following special researches: (1) a continuation of the investigation into protracted and recurrent infection in enteric fever, by Dr. T. Thomson, in conjunction with Dr. Hedingham; (2) a continuation of the investigation into protracted and recurrent infection in diphtheria, by Dr. T. Thomson and Dr. C. J. Thomas; (3) a continuation of the investigation into flies as carriers of infection, by Dr. Monckton Cope-

man and Professor Nuttall; (4) a continuation of Dr. Andrewes's investigation on the presence of sewage bacteria in sewer air, with the view of ascertaining their number and the distance they can be carried by air currents; also a continuation of Dr. Andrewes's investigation into the part played by changes in bone marrow in the defensive mechanism of the body against infection; (5) a continuation of Dr. Savage's investigations on the bacterial measurement of milk pollution, and on the presence of the Gaertner group of bacilli in prepared meats and allied foods; (6) an investigation into the chemical and physical changes undergone by milk as the result of infection by bacteria, and into the relation of the pancreas to epidemic diarrhoea, by Dr. Schölb erg and Mr. Wallis; (7) an investigation of the records of charitable lying-in hospitals as to the nutrition of the mother and other factors influencing the vitality of infants and their progress in the first fourteen days of life, by Dr. Darwall Smith; (8) an investigation into the occurrence and importance, in relation to treatment, of mixed infections in pulmonary tuberculosis, by Dr. Inman; (9) an investigation on the relative importance of certain types of body-cells in defense against the tubercle bacillus, and the effect of tuberculin and other remedial agents on their activities, by Dr. J. Miller.

At the recent conversazione of the Royal Society, Dr. George E. Hale, who has recently been elected a foreign member of the society, exhibited photographs illustrative of work at the Mount Wilson Solar Observatory, as follows: (1) Three photographs of the sun, taken at the Mount Wilson Solar Observatory, April 30, 1908, showing: (a) the photosphere, with sun-spots and faculae; (b) the flocculi of calcium vapor; (c) the flocculi of hydrogen, at a higher level in the solar atmosphere. The hydrogen photographs, which are made with the spectroheliograph, reveal the existence of cyclonic storms or vortices associated with sun-spots. On the hypothesis that the rapid revolution of electrons in the vortices should produce a magnetic field in sun-spots, a search was made for evidences of the Zeeman effect. Doublets and triplets were found in the spot spectrum, showing all of the polarization phe-

nomena observed by Zeeman in the laboratory, and proving the existence of a magnetic field. The strength of the field (at the level of the iron vapor) ranges from 2,900 to 4,500 C.G.S. units in different spots. (2) Photograph of the sun, taken on Mount Wilson, October 7, 1908, with the red line of hydrogen. The vortices surrounding two large spots in the northern and southern hemispheres appear to rotate in opposite directions. The magnetic fields in these spots were found to be of opposite polarities, as opposite directions of rotation would require. (3) Two transparencies, showing to better advantage the hydrogen vortices in the photographs of April 30 and October 7. (4) Six photographs, showing the mounting of the 60-inch reflector of the Mount Wilson Solar Observatory and the mode of transporting the tube to the summit on a motor-truck. (5) Blue print, showing design for tower telescope, of 150 feet focal length, now under construction for use on Mount Wilson. The hollow members of the outer skeleton tower shield (without touching) the corresponding members of the inner skeleton tower from the wind. The outer tower also carries a dome to protect the cœlostat and other instruments, which are supported at the summit of the inner tower. An image of the sun, 16 inches in diameter, will be formed in a laboratory (not shown) at the base of the tower. The spectrograph for studying this image will have a focal length of 75 feet, and will be mounted in a well beneath the laboratory.

THE American Ethnological Society has reprinted Volume III. of its *Transactions*, containing the important paper by William Bartram, on the "Creek and Cherokee Indians," written in 1789; and also the papers by E. G. Squier, on the "Archeology and Ethnology of Nicaragua"; by J. F. Irias, on the "Rio Wanks and the Mosco Indians"; by C. C. Copeland, on a "Choctaw Tradition"; by Berthold Seeman, on "The Aborigines of the Isthmus of Panama"; by Andrea Poey, on the "Antiquities of Cuba." The volume was never issued, almost the whole edition having been burned with the printing establishment. It is claimed that only fifty copies of the original edition were saved. The volume may

be obtained from the American Ethnological Society, Sub-Station 84, New York City.

THE department of railway engineering of the University of Illinois has recently erected a drop testing machine which is identical in design with the standard machine of the Master Car Builders' Association. This apparatus will be used in making impact tests of such materials as car couplers, wheels, axles, etc. It consists essentially of a spring-supported anvil weighing 20,000 pounds (upon which is placed the specimen to be tested), and a hammer weighing 1,640 pounds, which runs in vertical guides rising at either side of the anvil. This hammer may be dropped in these guides from any height up to 50 feet. The addition of this machine to the existing equipment of the College of Engineering of this institution renders it possible to make there tension, compression, bending and impact tests of all materials of construction, on specimens of the full size ordinarily met with in practise. Through the courtesy of Mr. A. W. Gibbs, the Pennsylvania Railroad Company furnished the drawings and loaned its patterns for the construction of this machine. The Cleveland, Cincinnati, Chicago & St. Louis Railroad Company, through its superintendent of motive power, Mr. William Garstang, has donated to the university its services in connection with the work of construction and assembling the machine, which was done at the Urbana shops of this company.

UNIVERSITY AND EDUCATIONAL NEWS

THE state legislature now in session has provided the University of Wisconsin with approximately \$2,500,000 for the next two years, beginning July 1. The permanent income of the university is supplied by a tax of two sevenths of a mill on each dollar of assessed valuation of the property of the state. This tax will yield the university approximately \$750,000 for the year 1909-10, and over \$800,000 for the year 1910-11. The sum of \$100,000 annually for the next two years was appropriated in addition to meet the needs of the growth of the institution not covered by the increase in the tax income fund. Besides this \$50,000 a year was given for books and

apparatus. The legislature also provided \$600,000 for buildings to be erected in the order of their greatest need during the next two years. This is a continuation of the building fund of \$200,000 a year for a period of three years. For extension work \$50,000 was appropriated for next year, and \$75,000 for the year following. An additional grant of \$30,000 a year was made for agricultural extension, and \$20,000 a year was provided for farmers' institutes.

MR. JOHN FRITZ, of Bethlehem, Pa., in whose honor a gold medal was founded on his eightieth birthday by the four great national engineering societies, has given \$50,000 to Lehigh University for an engineering laboratory.

DR. E. F. NICHOLS, professor of experimental physics at Columbia University, has been elected president of Dartmouth College, where he was head of the department of physics from 1898 to 1903.

At the June meeting of the board of trustees of the University of Arkansas a college of agriculture was established. Dr. C. F. Adams, acting director of the Experiment Station, was promoted to the deanship and directorship of the college and station.

MR. ALFRED C. LANE has resigned his position as state geologist of Michigan to take effect on September 1. He will be in Houghton during most of the summer. After September 1 his address will be Tufts College, Mass.

H. E. JORDAN, Ph.D., adjunct professor of anatomy (in charge of histology and embryology) at the University of Virginia, has been promoted to the rank of associate professor.

DR. M. W. BLACKMAN (Harvard '05), of Western Reserve University, has been elected assistant professor of zoology in Syracuse University. He will succeed Mr. B. G. Smith, who has accepted the position of instructor in zoology in the University of Wisconsin.

MR. F. G. SPECK has been appointed instructor in anthropology at the University of Pennsylvania, not at the University of California, as was incorrectly stated in a recent issue of this journal.